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ABSTRACT

Institutional modeling and program evaluation in relation to a correspondence program are discussed. The evaluation process is first considered from the viewpoint that it is an add-on activity, which is largely summative, and is the least desirable type of evaluation. Formative evaluation is next considered as a part of the process of institution building from the first step, which continues as an ongoing activity for the life of the institution, and is thus the most desirable evaluation process. Given the institutional concept and rationale for a new approach to the education of distant learners, including the over-all objectives to be achieved, a model of the new institution is projected. A conceptual matrix for building the correspondence institution is provided, which is useful in modeling because it (1) identifies all the elements that must be dealt with, and (2) provides a way for builders to "select the universe" that they wish to work within. A tentative three-stage model, in which the learner roles become the active focus, is provided. A planning matrix for modeling a correspondence teaching and learning institution is presented, and an appendix provides a list of the quality control subsystems that may be useful in fleshing out a model for a correspondence institution. (CK)

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Conference and Workshop on Correspondence Education in Africa

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Institution Building and Evaluation

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1.0. Evaluation as an add-on activity

1.1. Evaluation is frequently thought of as an add-on activity, after the institution has completed its work. The rationale for evaluation as an add-on to operations proceeds this way:

1. First we planned our work on the basis of needs which were given to us as our responsibility to meet.
2. Then we created the process to accomplish our work.
3. We got authorization, staff, and funds to proceed.
4. We did our work.
5. Now we must report to our superiors what we have accomplished, and ask for more subsidy so we can continue and grow.

(add on)

6. What have we accomplished?

1.2. As an add-on evaluation may be useful (and better than no evaluation at all)but the rationale is faulty and the consequences are hazardous. Consider, for example, the numerous examples you can think of wherein program and institutional evaluation never occurs at all. When you ask about evaluation, people hang their heads, look wistfully resolute and remark, "Yes. Well, we're going to do that later--just as soon as we get the time and the funds to do it. We've been so busy just operating the program we really haven't had a chance to get started. But we intend to." (Rustle of papers.) "You know, I even made some notes on it once. Let's see. Maybe they've been filed somewhere. . . " The hazard, of course, is that the five stage activity cited above is wholly operational; it does not include evaluation except, alas, as an add-on, an afterthought. Furthermore, personnel committed to operational stages that do not include evaluation, develop

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a growing sense of anxiety about what they are accomplishing. If this anxiety is not reduced by actually doing an evaluation, it increases until it becomes itself a barrier to evaluation. Since the person does not really know what has been accomplished, the anxiety becomes fear of what may be revealed by a true evaluation. Even when such anxieties-cum-fears are groundless (as they usually are) they definitely inhibit the undertaking of an evaluation. What is usually required to break this barrier is a crisis of some sort:

1. an order from a superior
2. a new top administrator who wants to make it clear that he's not responsible for what went on before he took over, requiring an evaluation to stake out the grounds and goals of his new administration
3. problems of such magnitude that the survival of the operation is threatened
4. an opportunity for the program to grow dramatically if a case can be made on the basis of past performance.

1.3. Evaluation as an add-on is largely summative; that is, it is an activity undertaken at some point to set forth what has happened and what has been accomplished up to that point. It may be historical or sociological in focus; it may be narrowly directed towards management, cost-benefit ratios, completion studies or other aspects; or it may be comprehensive in scope. An evaluation, however, is more than a summary of events or statistics; it is a careful appraisal of events and statistics leading to the formation of judgements respecting what has happened (good-bad, useful-not useful, authorized-not authorized) the identification of trends and the elaboration of cause-effect relationships. An evaluation seeks the why as well as the what and how of things, and may well include recommendations for future action. It is highly analytical in nature, and depends not only on records of events, happenings and statistics, but also on generally accepted standards and criteria drawn from the professions. Comparative studies may be an important part of an evaluation if the persons concerned wish to know how the activity evaluated compares with similar activities conducted elsewhere.

1.4. Summative or add-on evaluations are generally carried out by persons who are separate from and neutral towards the activity evaluated. Objectivity on the part of the evaluators is essential. If the manager or staff of the activity conducts a summative evaluation, there is conflict of interest, and the evaluation is suspect.

1.5. Summative evaluations by separate and neutral persons ought to be carried out periodically (at least every three years) on a planned basis, not a mere add-on under the stress of a crisis which may have arisen, in part, because there were no periodic evaluations to reveal what is happening, why, and to provide considered courses of remedial or developmental action, on the basis of accepted criteria.

1.6. Evaluation as a Function of Institution Building

If evaluation is conceived of only as add-on or summative, what does the new institution or program do to find out what is happening, why, and to make decisions for remediation or development? Does one have to wait for a crisis, or for planned summative evaluation after a period of operation? Is there a process by which the advantages of evaluation can be continually available during institutional development? The concept of continuing evaluation in institution building is important. It is, for example, an essential part of what has been called "systems design," a process that has evolved specifically to guide project and institutional development. As such, evaluation becomes a function of institution building itself, organic and integral to development, not add-on or summative. In this context evaluation is sometimes called "formative" or "developmental" evaluation. (1)

1.7. Formative evaluation is a part of the process of institution building from the first step, and continues as an ongoing activity for the life of the institution. It does not replace summative evaluation, which should occur periodically, and which is separate and neutral. Formative evaluation is carried on by the regular staff; it is not neutral and not separate. The people who use formative evaluation are committed to the mission and objectives of the institution because they have participated in their development; they are responsible for building the institution, its programs and services, and they are thus accountable for the consequences

of design, strategy, programs, processes and ultimate achievement. Responsibility and accountability require formative evaluation both for the self interest and security of the people in the program, and for the survival of the institution itself.

1.8. Formative evaluation, viewed in this way, is a function of institution building. If employed as suggested, it can bring to institution building the validity and vitality that the emphasis on behavioral objectives has brought to teaching in the past few years. Formative evaluation in institution building is creative, formative. The institution being built is the outcome of a complex of creative processes which derive their validity--always--from mission, objectives, goals. This kind of evaluation continually throws inquiry respecting what is going on back to original questions:

What are we committed to do? (Mission, objectives, goals)

Why are we doing these things? (Social needs rationale)

How best can we accomplish what we are committed to do? (Method, process)

Is what is actually happening consonant with our mission, objectives, goals? (Responsibility)

Why or why not? (accountability)

What decisions must we make now to improve the institution? (continuing development, building)

2.0. Institutional Concept and Rationale

2.1. Formative or developmental evaluation is organic and integral to the building (and operating) of the institution. Consequently, formative evaluation begins with the conceptualizing of the institution or program. In conceptualizing the program a theoretical model is being created, a prototype of the institution which will come to be through successive stages of development. The model is useful in making concrete and realistic the conceptual abstractions of institution building, and in guiding the development of the actual institution.

2.2. The general concepts that precede the formation of the institution give the answers (or the direction in which to search for answers) to such basic questions as:

Why is the institution needed? How were these needs determined? Are they valid?

What is the authority for the institution?

Who is the institution to serve?

Where are the learners; what is their condition and situation?

What educational services shall be provided? How well do the services match with the needs?

Who will develop these program services?

How will the services be brought to the learners?

What outcomes are expected?

If you look back over these questions you will see that they constitute an outline of, and rationale for, the institutional concept.

2.3. The Institutional Model and Evaluation

2.4. Given the institutional concept and rationale for a new approach to the education of distant learners, including the overall objectives to be achieved, a model of the new institution can be projected. The model must define the "universe" within which the institution exists. All the elements which are now part of reality must be present in the model system. In addition, as a response to the tensions inherent in the acceptance of objectives, the model system must picture the dynamics of activity, of movement, of things being done to achieve the objectives, to reduce the tensions through successful achievement. Hence the model system has to introduce these new elements, activities, structures, measures, arrangements that are not part of the present realities. A model system, therefore, will include elements that are novel or unique at the model building stage. These uniquenesses, as soon as implemented in practice, become part of the realities of the system. So a model must cope not only with things as they are, but also with things as they will be.

2.5. A model system is also characterized by subparts, or subsystems. The subsystem (or submodel) must be as viable to its purposes as the overall model system. Each part of the system and subsystems must be tested for validity in every way known beforehand as well as during its operation. Any system implies a condition of equilibrium; that is, given the conditions, the objectives, the forces acting, the activities, there should

be certain predictable outcomes. A change in any part of the system produces change in the other parts of the system.

Alas, no human system actually operates so precisely. There may be errors in defining the "universe" within which the system operates because of unknown or unperceived elements which are not taken into account. There may be changes introduced unknowingly at some point so that adjustments to other parts of the system are not made concurrently. Predictability thus diminishes. Reliability falters. Validity fades.

2.6. That is why the model system suggested here has a built-in formative evaluation or sensing element. If feedback warns the institution builders of something unanticipated, of a failure at any point, an immediate analysis of the system model in situ is called for. The equilibrium of the system which makes it reliable, and outcomes reasonably predictable, must be restored. Consequently an evaluation scheme which only comes into being to measure effect after institution building is an extravagance that human planners who care about their work cannot afford. Even success, evaluated after the fact, offers little enlightenment. Institution builders use formative evaluation to analyze what is going on, almost day-to-day, make decisions on the basis of known realities, and continually develop and refine the model system until it does achieve that reasonable equilibrium that assures reliability and predictability. Such an evaluation does not require control groups, since its purpose is not comparison with some presumed standard. However, operation of the model will eventually produce norms or standards which can be used in other kinds of evaluation or as part of periodic summative evaluations. (2)

2.7. Building an institutional model is therefore not a simple matter of putting together a project according to a pattern or template. It is a creative effort to achieve the thrust and counterthrust, the tension and counter-tension, the actions and reactions that the model systems hypothesize are needed to produce the results desired. And since institution building is not carried on to prove or disprove the models, but rather to make advances in human organization and activity towards

better education, in this case of distant learners, the burden of the institution builders is to work creatively with the system to make it produce what is needed. Continuing evaluative feedback will make that kind of development possible, and will also contribute to later summative evaluation. (3) To present formative evaluation as a function of institution building it is necessary to present a view of institution building. Hence the succeeding pages have a dual purpose: 1) a compact delineation of institution building as a process, and 2) an exposition of the role of formative evaluation within that process. While the presentation has general validity, it is specifically focused on the problems inherent in building a correspondence or independent study institution serving distant learners. (4)

2.8. A Conceptual Matrix for Building the Correspondence Institution

The matrix presented on page 8 cites the various situation realities that must be considered in constructing and operating a correspondence institution. Each of the realities is, in fact, a variable, because in no specific place or region where such a program is established will the situation be exactly the same. The matrix is useful in modeling because (1) it identifies all the elements that must be dealt with, and (2) it provides a way for builders to "select the universe" that they wish to work within. For example, institution builders may wish to approach their test universe through the selection of target populations, through a subject or content focus, or through some other situational reality. The matrix enables the builder-designer to locate the approach that is closest to his situation--that fits his resources, the population that he regularly works with, etc. He can select the universe that is indigenous to him and thereby apply the special talent, expertise, resources and experience that his situation offers.

2.9. Conceptual Matrix for the Correspondence Program

n building the correspondence institution models, variables such as these itemized here must be considered as parts of the "universe" being created. hile each variable is conceptually separate, it has validity in the universe only because it is a part of the whole. Hence the variables must be studied d acted upon vertically and horizontally, separately and in relationship to others according to mission, purpose, objective.

get ulations	Subjects of Focus in Courses	Educational Process	Educational/ Other Resources	Linkages with other depts, agencies	Structure Organization	Admin./management	Training Develop. of Staff	Quality Control & Assessment	Financing
groupings		Media: print other	Educational- Univ.Ext. Residence Ad Hoc Instruction, Field staff	Univ. Admin. Ext. Admin. Resident dept. Ministry of Ed; other colleges/ universities Local schools Tech. colleges Vocational programs Educ. assoc. Libraries	Design to accomplish mission objectives in each situation	Conceptual matrix Recruitment Counseling Registration	Course writing Course editing Production Instruction	Reporting Evaluation for decision making Evaluation for development & institution building	Gov't bilateral aid; fees from students Budgeting Cost/benefit Ratio
io-cul- ural oupings		Educational package	Counseling Evaluation Libraries Media/print production		Relationships to residence faculty, gov't, ministry, public, private schools	Records Student Services Transfers Accreditation process Certification Reporting Quality control process Budgeting Evaluation/assessment Employment policies Staff training/ development	Record keeping Recruiting Counselling Management Other media	Persistence completion criteria/ standards	Unit costs Risk practices Report points Control points Approval points Lead time for reports, budgets
upational oupings		Practical work	Postal service				Liaison/relationship with other agencies		
nographic haracteris- ics		Achievement standards	——— Other-- Space buildings rooms equipment		Advisory council Vertical/lateral work flow, Authority control Check points Report points		Population/ market studies Eval./quality control Standard/criteria Formats to be used Time allotted Rewards Standards Criteria	Periodic comprehensive evaluation Conceptual matrix	Process-- internal, external
ofiles		Exam procedures							
rket urveys									

2.10. The conceptual matrix suggested is not complete. Each institution builder may insert into the appropriate columns his mission, objectives and the other items that describe his universe, and delete what is inappropriate, to complete the conceptual matrix for his own institution. Vertical columns should itemize all the development concepts of the particular categories, spelled out in specifics. The first column (far left) will spell out mission and objectives. Hence by starting with a specific objective on the left, it is possible to follow laterally through the succeeding columns to conceptualize the model or system that is being built to achieve that objective. Of course it is not possible to get the grand design on one sheet of paper, as presented here. Laying out the entire model or design in detail, unique to a specific situation, may require an entire wall in your office.

2.11. Laying out the matrix may look like a boring chore. It isn't. It's an exciting, intensive effort, for here before your eyes and under your hands the institution begins to come into being. The matrix is dynamic, not static. It changes as your conceptualization matures, as the realities of your universe are perceived or altered, as mission and objectives are modified. If nothing else the matrix is useful as a series of check lists; but it will be more than that if it is employed thoughtfully.

2.12. The conceptual matrix is not at this point a system, model or institution. The concepts fashioned in the matrix, however, are the basic ingredients of the next steps, modeling, testing and operating. The modeling process suggested here consists of three essential elements--a systems development plan, an analysis of learner roles, and a matrix for modeling.

2.13. Systems Development Plan. A systems development plan merely itemizes, in appropriate sequential order, the major task areas that must be completed in working towards a model system.

Task 1. Concept

Task 2. Mission, objectives, goals

Task 3. Learner roles and needs

Task 4. Resources required to achieve objectives with learners

Task 5. Communications media to be used
Task 6. Coordinations required
Task 7. Learner services
Task 8. Curriculum, courses, diplomas, degrees
Task 9. Continuing formative evaluation
Task 10. Staff required, regular and ad hoc
Task 11. Organization and structure
Task 12. Software and hardware
Task 13. Training, staff and learners
Task 14. Finance, fees and budget (5)

The order in which tasks are taken up is important. The aim of a systems development plan is to go from the concepts and generalizations of the conceptual matrix to quite specific plans that will be needed in the later stages, and to ensure that particular tasks (such as organization and structure, or finance and budgeting) are not considered until the institution builders know in considerable detail what the institution will be so that practical models that fit the requirements can be produced.

2.14. Modeling to Fit Learner Roles. To construct a model, test and operate it as an institution, it is now necessary to conceive, picture or visualize events as they are likely to occur in the universe described by the conceptual matrix. The institution builder "acts out" the events intellectually, and puts them on paper as a model of the institution and its behaviors. Modeling is thus a test of the completeness and appropriateness of the concepts first sketchily drawn together in the matrix. It's not unusual to find that concepts which looked adequate are too fuzzy to act out; or that ideas which seemed realistic at the conceptual level are at odds with certain realities of the universe which are unchangeable givens in the situation; or that some concepts are in conflict with others. Hence modeling tests and improves the validity of the concepts upon which the institution is built. This is formative evaluation at work focusing inquiry on concepts and processes, and providing feedback to the institution builder of what is complete, what works; what is incomplete, what doesn't work; indicating voids in design and process, signalling the need for decision making, modification or redesign.

2.15. Seven Learner Roles. The focus of the correspondence institution is on the distant learner. If we look at the distant learner in his situation with the purpose of achieving the overall goals which have been stated on the matrix, we see that there are seven identifiable roles which the learner plays in relationship to the institution being built.

Role 1 - The learner is passive with respect to learning because he thinks he is learned enough to survive and perceives no new learning needs.

Role 2 - He is anxious because he thinks or fears that maybe he doesn't know enough, and begins to weigh whether and how he could learn general or specific things that would meet his needs better. His needs are only vaguely perceived but he is beginning to display goal seeking behaviors.

Role 3 - He casts about for leads which will put him in touch with learning opportunities to satisfy his needs in his situation. His needs are now more sharply perceived, and are being transmuted into goals. Anxiety increases, particularly if he fails to locate opportunity that is accessible to him.

Role 4 - He acts on his goals, makes decisions among the possibilities open to him. He does something to enhance his learning, such as enroll in a learning program. Whatever overt or covert action is taken to initiate purposeful learning, goals continue to undergo modification. If the action taken is formal, goals are modified according to institutional programs and accessibility. The learner displays learning or knowledge seeking behaviors.

Role 5 - He becomes a student in a specific program. He begins learning.

Role 6 - He persists (or does not persist) in learning.

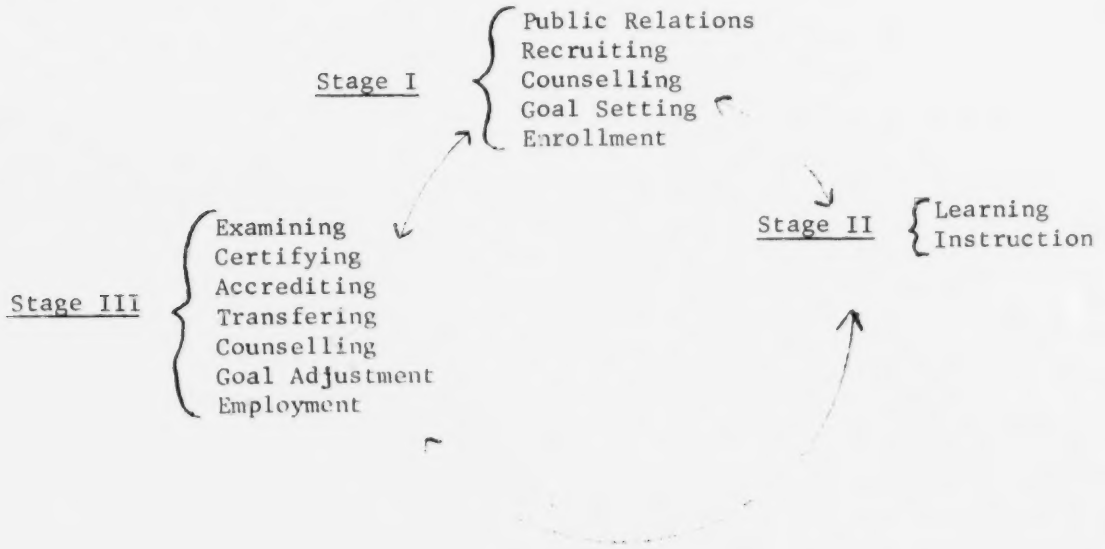
Role 7 - He reaches (or does not reach) his and/or the institution's goals. Anxiety is reduced if successful; increased if unsuccessful. Further goal modification.

These seven goals are cyclical. For example, in playing out Role 7, the learner whose needs and goals are in equilibrium will cease formal learning and return to Role 1. Or, if needs and goals are not in equilibrium, he will go back to Role 2 or 3. Similarly success or failure (for whatever reason) in Roles 3, 4, 5 and 6 will push the learner ahead to the next role, or will force him back to a preceeding role. Role 1 is characterized by passivity, which, as needs are perceived and transmuted into goals, gradually phases into activity, first through goal seeking behaviors, and then through learning or knowledge seeking behaviors. The extreme dependency of the early roles is replaced (if the learning is successful and the institution's goals are met) by growing autonomy and independence in the later roles. If the cycle of roles described above is reasonably accurate for most learners (differences in socio-economic, cultural and educational background, geographic and situational circumstances naturally affect role behaviors) then the educational institution ought to focus on these roles.

2.16. Institutional modeling has generally focused on institutional roles, not on learner roles. If the institution has the mission simply of teaching learners who are required to attend school (the source of most of our concepts of teaching, learning and the institutional models that have evolved) the number and nature of learner roles perceived is somewhat different. Here the institution builder starts with the learner as a given. He works out a model according to what the institution has to do from that point on, with captive learners. There is thus a tendency for the institution to become authoritarian, to deal with the learner as a supplicant, to fashion objectives, courses, and processes in the image of the institution and at its convenience.

2.17. The institution which seeks to encourage self-selected, non-captive distant learners must develop its model on other concepts and on the roles played by its learners. This is not an easy task if the distant learner program is a department or division within an otherwise conventional institution. In such cases the institution builder has to face pressures, and a climate of educational theory and operating practice, that may be inimical to the concepts, purposes, roles and processes that he is trying to model. Nevertheless the builder of a correspondence or other types of mediated program for distant, independent learners has no real choice. If he wants to build to serve those learners, he must be prepared in his modeling to deviate from the conventional.

2.18. A Tentative Three-Stage Model. From the conceptual matrix, systems development plan, and the analysis of learner roles a tentative system model can be constructed to accomplish the purposes in the universe and with the populations and resources that have been identified. The learner roles become the active focus of the model; that is, the institution is built around the actual roles of its learners in order that it will serve learners at every stage of relationship and development. A model built around learner roles can be expressed in three stages. The exact number is immaterial so long as the subsystems accurately relate to the learner and the roles that he plays. These stages are cyclical, but they may be shown as linear or branched if that is preferred.



2.19. Stage I

A subsystem designed to reach and serve the learner in Role 1, in which the learner is passive, and assumes that he knows what is necessary to survive, meet his needs and goals. There is lack of perception of the coterminous relationship of ignorance and knowledge and there is lack of goal seeking and knowledge seeking behaviors. The learner (or, from the point view of the institution, the potential learner) may be neutral to the institution or friendly or hostile, but that he needs a relationship to the institution for learning is inconceivable to him.

The subsystem to cope with Role 1 learners is sometimes called Public Relations and Recruiting. The purpose is to reach as many Role 1 learners as possible, and help them advance through Roles 2, 3 and 4. Although Role 1 learners may seem to represent an undifferentiated mass of people, the subsystem to reach and serve them must be discriminatory. Mass recruiting is generally unsatisfactory, as is mass Public Relations. The subsystem must be rifled to reach those who are most likely to respond to the opportunities made accessible. Communications formats must be of the kind to which such learners pay attention and respond. Although the long range institutional and social goal may be to encourage purposeful learning through an enrollment in a course, the Stage I enabling goal is more general: to get the person to examine situation, needs and goals, and discover that continued learning may contribute to the improvement of his and society's well being.

Since it is well known that the more education one has, the more one perceives continuing needs for learning, the Stage I subsystem tends to build on what educational experience or awareness is already

present among Role 1 learners.

Formative evaluation at this point focuses on what happens, the successes and failures, of this stage of the institution's model activity. The institution builders ought to be able to estimate how many Role 1 learners must be reached in order to get a yield of Role 2 learners, and so on. Demographic data as well as program data are needed. Who is to do these important tasks, what reports are needed, how often, and how they relate to decision making all along the line must be carefully built into the subsystems.

The Stage I subsystem will also reach and serve Role 2, 3 and 4 learners, not only as they result from efforts with Role 1 learners, but also because the model activity will reach persons already in Roles 2 and 3.

The subsystem hence will have specific enabling objectives to guide activities with Role 2, 3 and 4 learners. At some point the general public relations and recruitment type activities will be replaced, for specific learners, with advising and counseling activities. Here again the institution builder must be able to estimate the number of learners in each role that will yield, through the institution's model activities, the learners required in successive stages so that the total system remains economically and academically viable. Formative evaluation at each stage and substage will analyse, pinpoint and critique in order to achieve the necessary flow of learners, and to generate the demographic data that are needed in order to design programs that will work.

2.20. Stage II

A subsystem that works with a learner who has enrolled in the learning program. Stage II is composed of two subsystems to accommodate Role 5 and 6 learners.

Role 5 - the learner begins learning or does not begin

Role 6 - the learner persists or does not persist

Each of these substages is designed to accommodate branching. Essentially, branching in the system proposed is a reversal of progress to a previous learner role. It is important to note that if, for example, a student who has progressed from Role 4 to Role 5 does not begin learning (the performance of learning tasks and the submission of evidence of learning) there may be many reasons, including a decision just to drop the whole thing. Perhaps 10% of the self selected, non-captive distant learners who progress to Role 5 (are enrolled, obtain materials, pay fees and exhibit initial learning seeking behaviors) actually do not begin. They branch out, in effect, before starting. Ten percent of an enrollment is a high figure, and both for the learners and the institution it is eminently worth while to have a subsystem to cope with this phenomenon. Whether the subsystem retrieves (i.e., reverses the role regression) every learner or not (it won't) the counseling at this point can be very valuable in helping learners and in compiling data that can be used to construct profiles of learners that will help assess and modify all the subsystems. This is a function of formative evaluation.

There may be a tendency as the systems are routinized for a certain rigidity to creep in; for managers and staff people to shrug their shoulders over the non-start phenomenon because the learners who do progress through their roles keep everybody busy. Furthermore, the nature of most institutions--and the people who staff them--is to focus on what appear to be institutional successes rather than failures. (Non starts do not necessarily represent failure, but they may be categorized as failures by an unknowing public or higher institutional authority unless the program people research the phenomenon, work at improvement, and have the evidence to avert a mis-

reading of the raw, superficial statistics.) This, again, is a function of formative evaluation.

The same observations may be made about learner branching in Role 6, persisting or not persisting in learning. Research has generally indicated that the learner who actually begins is more likely to persist; that a learner who persists through a third of a course is more likely to persist to the half-way mark; that a learner who passes the half-way mark is likely to complete the entire course. Again, there are many causes for lack of persistence, some completely outside the institution's responsibility, but some that may be directly the result of problems that have their origin in the instructional system itself.

Formative evaluation will probe learner progress to monitor what is going on, sort out learners who cease for reasons external to the system, and those who are hung up for reasons that are the institution's responsibility. Profiles of learner persistence in each course are instituted and maintained; if a profile, for example, shows that a substantial proportion of learners in X course falter at Lesson 7, this is an unmistakable signal that something unanticipated is happening at Lesson 7. What is it? Why? What must be done to correct the situation? Who is responsible for modifying the lesson? For counseling the learner? When must all this be done?

Formative evaluation feeds information to decision makers that will keep the system in reasonable equilibrium. Note that the total system (the stages and substages working together) are in effect a closed loop. Each successive stage is dependent for its success on the success of the preceding stage. For example, if there is a problem with Lesson 7 in a course, and substantial attrition occurs at that point, the stages of the system that are to serve completing learners are endangered. Learners in sufficient numbers to support the later stages do not get that far. Objectives

(both individual learner and social-institutional) are not achieved; the unit may appear to be over-staffed; per unit costs escalate; a budget crisis may arise; the program may come up for review by higher authorities. Formative evaluation is intended to signal malfunctions early on, to pinpoint causes, and offer evidence on which decisions may be made for correction--before a crisis occurs.

If there is no built in formative evaluation system to be used as a guide in institutional development, the manager frequently does not know where to look when trouble occurs. All he knows is that learner and social-institutional goals are not being met. In a complex system the trouble could be anywhere. A full blown comprehensive, summative evaluation by a neutral outsider is time-consuming and expensive. The patient may die before the right diagnosis and treatment can be determined.

2.21. Stage III

A subsystem that works with learners in Role 7, reaching or not reaching completion. Learners close to completion, approaching final exams, winding up the submission of all learning exercises, are likely to complete. But some do not; and some who do complete are failures as a result of a poor examination, poor overall achievement or other causes. Learner failure cannot be avoided. There are learners who are lazy, who fail to show requisite progress, who simply have failed to learn despite efforts made by others to help them achieve successfully. However, self selected learners who have persisted to completion have exhibited a high level of motivation plus a willingness to invest energy and resources over a period of time. It would seem unrealistic to classify them as lazy, or uncooperative, or lacking in resourcefulness, or even lacking

in capacity at the end of the course, in order to explain failure. Such causes for failure should have shown up earlier, been noted so that counseling and instruction could be modified accordingly, in order that an unqualified learner does not in fact approach the final stages unless he has reasonably good prospects for satisfactory completion. In a well designed course the risk of failure should diminish as the learner progresses even though it can never be completely eliminated. Hence the final examinations is as much a test of the instructional system as it is of the learner.

Distant learners face one examination hazard that deserves careful study. Throughout a course of instruction, distant learners generally prepare their lessons in an open book, untimed format. This format works well, preserves freedom of choice, and is essential for non-captive learners. However, learners in this mode are not prepared for conventional examinations that are supervised, timed and exclude access to materials. Some distant learners find this switch of format disastrously upsetting. Yet for quality control and certification-accreditation reasons, the institution may require conventional examinations. The system must therefore anticipate the problems and prepare the learner to meet them. A mid course examination may be needed not only to check progress, but chiefly to give the learner experience in taking a final examination in a different format. Lessons may be designed to give practice in some of the skills important in taking examinations.

Formative evaluation of the system and subsystems will yield up evidence of "what is actually going on" so that the managers as well as the learners are prepared for eventualities and ready to make decisions that will improve performance and success.

But even successful achievement is not the end. Learning is continuous throughout life. With completion of any part, a new cycle is ready to begin. The institution should not abandon the successful learner anymore than it abandons

learners who have regressed in various roles throughout the process. The subsystem must cope with learner and societal needs at the end of a process as well as at the beginning. Examination, certification, accreditation, transfer, continuation, counseling towards new or continuing goals, employment--these are some of the activities that cluster when the Role 7 learner achieves closure. Since a substantial proportion of the enrollments of educational institutions is composed of previously successful learners (the more you learn, the more you want to learn) an adequate subsystem for coping with successful learner needs is important to the development of the institution.

2.22. The tentative three-stage model(system and subsystems) suggested above is not yet complete. A system model is not complete unless it clearly indicates:

What is to be done

Why

How the work is performed (the various systems and subsystems in stages)

Who is responsible for what

When things are scheduled to take place (sequence or order, including branching)

Mechanisms for sensing what is actually happening (continuous feedback analysis through formative evaluation)

Check points for monitoring and developmental decision-making

Participatory relationships with learners, teachers, counsellors, administration and others as necessary or desirable

2.23. The institution builder who has progressed this far can now begin to flesh out his own model. Fleshing out (supplying in detail all that the model calls for) is likely to be successful because of the preliminary work already accomplished. (6) Bringing together the results of previous steps (conceptual matrix, systems development, analysis of learner roles, and tentative three-stage model with subsystems) may be easier if a modeling matrix is followed.

2.24. Matrix for Modeling a Correspondence Teaching and Learning Institution. A matrix as a guide in fleshing out the model is suggested below:

2.24. A Planning Matrix for Modeling a Correspondence Teaching and Learning Institution

Learner Roles	Model Stages; systems and subsystems	Enabling Objectives	Responsibility Institution	Tasks, Problems Anticipated	Processes (subsystems)	Responsibility Learner	Sensing Mechanism	Check Points
1	Stage I Public Relations Recruitment							
2	Goal Seeking Counseling Registration Goal Setting							
3	Adaptation of learner/course goals							
4	Beginning learning Persisting							
5	Stage II Persisting Reaching Objectives							
6	Counseling							
7	Stage III Examination Certification Accreditation Transfer Continuation New goals Employment							

2.25. When the planning model is fleshed out, each subsystem can be modeled. It is desirable that the institution builder carry out this step to test the completeness, accuracy and viability of the total systems model. Following modeling, the systems and subsystems should be piloted, tried out. Here the sensing mechanisms are also tested, and the information yielded enables the institutional builder to modify and improve the model where needed. Full operation follows the piloting and modification.

2.26. The steps in institution building suggested here may seem more complex, burdensome and unwieldy than building the institution itself. Experience shows that they are not. Ordinarily the theory and practice of institution building is assimilated over a long period of time. Here a grand design has been compressed into a single presentation, chiefly as a vehicle to convey the place and role of formative evaluation in institution building.

3.0. Ends and Means

Formative evaluation systems design, and all the other concepts and practices discussed, are not ends in themselves. They are only means towards those larger institutional ends which animate social and institutional planners and builders. Their chief virtue is that they continually remind builders of the true ends of all institution building--the improvement of the lives of individuals in society, and thereby the improvement of society itself.

3.1. Early on in this paper it was mentioned that in planning and building one has to cope not only with what is present as a given in any social or institutional situation, but also with what one has built to ameloriate, meet needs. The consequences of intervention (in an individual, institutional or social sense) are not always occurately foreseen, no matter how carefully the model has been designed and tested. Means which have been employed towards valid goals tend to become goals themselves; and valid goals when achieved tend to become means by which other goals may be realized. John Dewey (7) noted this most forcefully in pointing out, "In the continuous temporal process of organizing activities into a co-ordinated and co-ordinating unity, a constituent activity is both an ends and a means: an end insofar as it is temporally and relatively a close; a means insofar as it pro-

vides a condition to be taken into account in further activity." He also reminds us that "No human activity operates in a vacuum: it acts in the world and has materials upon which and through which it produces results. . . .That organization which is the 'final' value for each concrete situation of valuation thus forms a part of the existential conditions that have to be taken into account in further formation of desires and interests or valuations."

3.2. In this paper formative evaluation has been suggested as a means which will aid in the building of an institution, a process by which the manager can monitor the institution's development, and through which the consequences of intervention in the universe which comprises the institution may be more fully and accurately known.

3.3. All this is also implied in "Murphy's Law" and its subsequent amendments. Murphy's Law expresses the common man's observation of how things work out in a complicated world: "If anything can go wrong, it will." Apocryphal amendments to the law include, "If anything can go wrong, it will, when and where you least expect it"; and, "If anything can go wrong, it will, not only when and where you least expect it, but you will be the last to know." The employment of formative evaluation as a function of institution building may help prevent the unwanted consequences which sometimes dog the activities of institution builders; and create an institution which achieves its purposes.

CAW/ss
5/14/73

References

(1) Contemporary Approaches to Program Evaluation, Sara M. Steele; Report prepared for ERIC Clearing House on Adult Education; 1973, page 89 ff.

(2) Ibid, "Matching Evaluation Approaches to Needs," page 52 ff.

(3) "Evaluation of Continuing Education Programs", C. A. Wedemeyer; American Journal of Pharmacy Education, 35-5, 1969.

(4) "Independent Study", C. A. Wedemeyer, The Encyclopedia of Education; Macmillan and Free Press, Crowell-Collier, 1971; vol. 4, pp. 548-557.

(5) Adapted from Wedemeyer, Wood and Moore, The Open School, State of Wisconsin, 1971, p. 12.

(6) See the Appendix to this paper for a list of the quality control subsystems that may be useful in fleshing out a model for a correspondence institution. (Adapted from Report of Assessment and Development, C. A. Wedemeyer; Department of Correspondence Instruction, INCE, Caracas, Venezuela, 1973, pp 48-53.

(7) Theory of Valuation, John Dewey, The University of Chicago Press, 1939, pages 49-51.

APPENDIX

Objective	Function	Criteria	Measures
1	1,4,7	1. Do courses selected and produced meet the needs of: INCE participants? the nation?	1. enrollment statistics 2. completion statistics 3. quality indices (level of participant performance) 4. participant follow up survey and profile (continuing) 5. national needs and INCE policy 6. field director survey (annual) 7. participant employment indice (annual)
2,3	2, 3, 7	2. What problems in the development, use and application of methodology have been identified and solved through research and experimental studies?	1. The identification of problems has been made a fixed responsibility of some person. 2. Time is allotted for a person or persons to define problems, set up formal studies, gather data, formulate hypothetical solutions, test validit and apply solution. 3. Ad hoc functional arrangements made with outside specialists for specific research, experimental, or problem solving activities. 4. Research, experimental and problem solving studies have been reported at professional conferences, and/or have been published. 5. INCE specialists in correspondence study are sought for consultation, advice, leadership in a larger spher (regional, national, international). 6. Publications and reports go beyond the descriptive to problem solving on a generalized and theoretical basis for broader application. 7. Problems identified and studied do not persist; or new studies are undertaken to achieve solution.
4	7	3. Is the correspondence department administered efficiently in terms of its mission, objectives, and functions?	1. enrollment statistics 2. completion statistics 3. lesson load statistics 4. participant quality indices 5. collaboration with other related departments as needed for use of staff, resources 6. regular reporting

Objective	Function	Criteria	Measures
			7. Development/growth according to planned and systematic strategy and implementation 8. Productivity increasing proportional with development phases I, II, III. 9. Cost of administration diminishing proportional with development phases I, II, III. 10. Quality control measures in force and standardized. 11. Comprehensive evaluation in collaboration with evaluation unit at periodic intervals for decision making with respect to mission/objectives and functional success/achievement.
5	5, 6	4. Does the correspondence instruction provided succeed in: a) motivating participants? b) being relevant to participant situation goals, aspirations, problems? c) communicating information, process and content? d) satisfying the needs of participants and national needs? e) maintaining a quality level at least as high as conventional instruction? f) employing methods, techniques, media and materials that reach participants effectively, ie., give easy access and provide satisfactory feedback? g) defining problems needing study? h) mobilizing INCE resources from various units for resourceful development of materials, processes, content? i) applying instructional know-how effectively? j) applying results of partipation in professional training and upgrading, continuing education, independent learning, and attendance at conferences and meetings of a professional nature?	1. enrollment statistics (cumulative) 2. dropout, failure statistics (cumulative) 3. review, inspection of all materials 4. maintenance of problem file for correction of materials at points needed? Removal of obsolete elements 5. Development/maintenance/revision on regular schedule. 6. Materials, content, approach, design from participant situation and profile analyses. (Continuing and cumulative) 7. Training and upgrading programs for instructors, others. 8. Training, upgrading for course writers, developers. 9. Training, upgrading for field representatives/director of centers, advisers to participants. 10. Close study at periodic intervals of time factors in feedback loops. 11. Spot checking at intervals of lessons taught by instructors for fairness, accuracy, completeness, positive and encouraging attitude, motivational relevance.

Objective	Function	Criteria	Measures
		5. Does the learning of the participants: a) meet INCE quality levels at least as well as conventional methods? b) satisfy practical needs of participants for entry into job marketplace or job upward mobility? c) provide regular feedback to instructors and course developers/maintainers for the surveillance of overall goals, methods, materials, etc? d) carry to the mastery level for concepts, processes, information and skills that are essential to practical use and application in life? e) coordinate with other learnings obtained elsewhere so as to be reinforcing and to contribute to continuing learning through whatever methods? f) indicate adequate and successful use of communications media and strong dependence upon sense learning for development of ability to abstract and apply as necessary in job performance? g) occur through access systems designed to minimize loss of time, reduce confusion, and emphasize practical usefulness of learnings? h) yield to analysis so that the range of individual successes and failures is clearly visible to the instructor for individualization of instruction, differentiation of responses, and clear and justifiable identification of failure, average and exceptionally successful participants? i) enable exceptionally successful students to be singled out for congratulation? j) permit analysis for learner problems, leading to maintenance, revision and further development?	1. enrollment statistics 2. drop-out, failure statistics 3. examination/lesson statistics 4. compare quality level of participant achievements with other programs. 5. Survey of standard feedback of participant attitude towards each course, with demographic data (for profile), problems, satisfaction/dissatisfaction. 6. Follow up survey (annual) of success of participant drop outs, failures--re: entry/change in job market; further learnings. Later re-assessment of course taken--add to profile 7. Proportion of new enrollments that are repeat participants by own choice. 8. Periodic (annual or bi-annual) survey of field directors re: effectiveness of courses, progress of studies etc. (anonymous) 9. Periodic (annual or bi-annual) survey of instructors, course developers of learning problems, effectiveness of process, materials and usefulness of course (anonymous) 10. Identification of top 10% of participants in success, and special recognition of, linked with profile, job entry and upgrading data. (Promotion public relations.) Suggestions for improvement. 11. Survey of instructor lessons for evidence of adaptation to individual differences. 12. Study of lesson service--time/etc. 13. Maintenance of problem file for revision/development. 14. Definitions of problems in need of study. 15. Evidence (attendance, writing, reporting) of professional development gained from attendance at conferences and meetings. 16. Review panel for methods, materials.

Objectives	Function	Criteria	Measures
		k) satisfy the expectations as well as needs of participants? l) reflect the application (in methods, materials, processes) of knowledge of how learning occurs?	

5.8. Summary of measures recommended:

		Time Frame
1. Reports of Statistics: enrollment, current & cumulative completion, current & cumulative dropouts, current & cumulative lesson loads, current & cumulative exam loads, current & cumulative	satisfactory unsatisfactory (failed)	monthly, with semi-annual and annual summary (for department, director, publicity)
2. Course Statistics Analysis enrollment completion dropouts lessons loads exam loads } from above problems noted by participants problems noted by instructors problems noted by field directors problems noted by supervisors		semi annual; or annual (for department, supervisors, course developers training and development)
3. Methods/materials review panel (1 administrator-Chairman one instructor one course writer/developer one participant one producer) (use of data compiled in #2; Recommendations? Actions on?		annual Review each course every 2 or 3 years; oftener if problems occur; less frequent if course proceeds with few problems. Review Panel thus looks at 1/2 or 1/3 of courses annually.
4. Identification of problems requiring special study (ie., research, experimentation piloting, etc.)		annual (for budgeting/planning)
5. Field director survey special problems assess meeting needs of students suggestions for new courses, modification of old		annual

6. Participant Survey - continuing (part of each course enrollent; completed at time of final exam; anonymous)

Probe: problems
attitudes
satisfaction of needs
suggestions for improvement
practicality
future plans for learning
personal data

(Report to department chairman)

7. Participant Follow-up Survey

(Probability sample only)
a) successful completers
b) unsuccessful completers (compare)
c) dropouts (add items getting getting at <u>why</u>)

repeat some of questions in survey 6.

Present status:
employed in area
not employed in area
employed in other area

one study annually of completers, non-completers for improvement of instruction, courses, revisions, training, etc. (Report to department chairman)

8. Course revision/development panel

1 writer
1 supervisor
1 methods/technology
1 administrator (chairman)

annual; act on information from other measures; prepare report for planning, budgeting, training

9. Comparative Statistics Study

comparison of enrollment, persistence, success and quality indices vis a vis correspondence instruction and other types of instruction. Also (if known) disposition/ie., what happens to participant <u>after</u> course. . .employed?)
comparative unit costs (see #10)
top 5%-10% of students by name for special congratulations.

annual (for department chairman, public release)

10. Productivity Survey

work output of department
and individual members of department
proportional cost (%) of administration
teaching
materials/other costs

annual
cumulative comparison for trends

(for use in publicity; planning and budgeting for developing decision making quality control
compare #9.

(to department chairman)

11. Comprehensive Evaluation
by Evaluation unit and correspondence instruction unit

every three years

12.	Report of Feedback Time a) center participants b) mail participants		annual to department chairman note problems identified; action taken
13.	Profile of Participants--different levels different courses from continuing course survey data and follow-up data		annual to department chairman for use in development, revision, planning, methodology, materials, training, reporting
14.	Instructor Survey (anonymous) for problems suggestions attitudes new course ideas etc.		annual to department chairman
15.	Lesson Review Panel (random sample review)	1 administrator, chairman 2 instructors 1 field representative 1 part-time or former participant or professional	for department chairman training planning, development
16.	Periodic staff meetings to discuss any of above, reports of reading, conference, meetings, policy. training, etc. . . .or periodic staff bulletin to carry same function demonstrations. (By department chairman and collaboration of other specialists as needed, both. from within and without the department.)		3 times/year with sufficient time to explore problems/ statistics, reports in depth, discuss, sense direction of training needed.

___ Report of Assessment & Development, Dept. of Correspondence Instruction, INCE, Caracas. C. A. Wedemeyer, 1973, pages 48-53.

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